



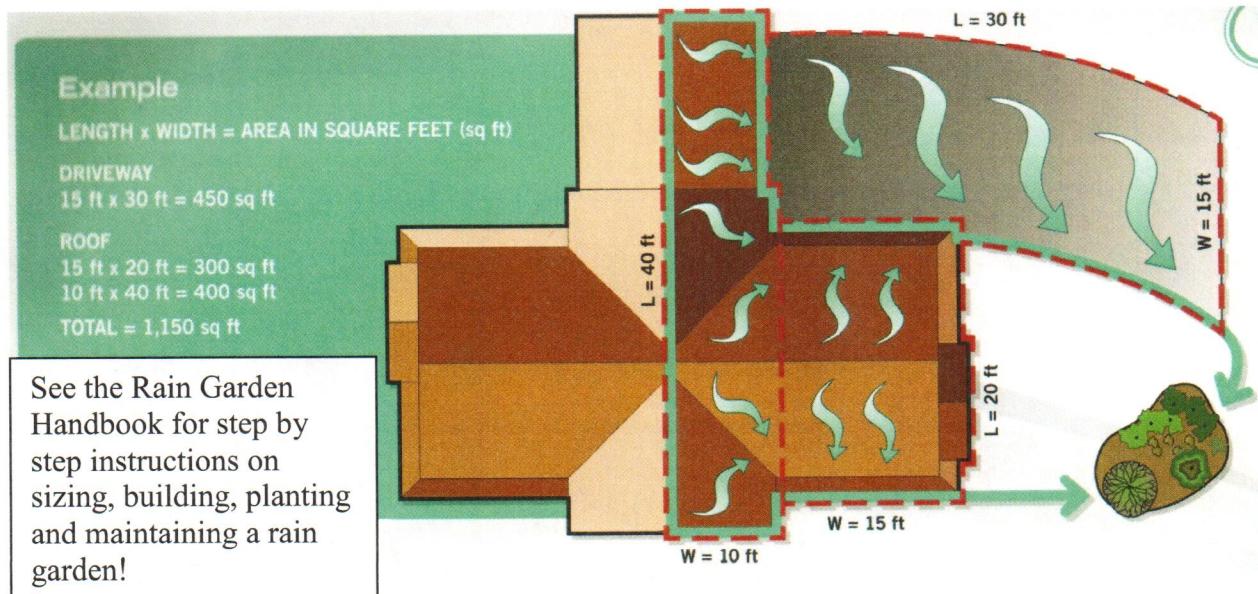
BMP T5.14A Rain Gardens (Single-Family Residential ONLY)

What is the purpose? Rain gardens are landscape depressions used to infiltrate stormwater from roofs, driveways and other surfaces into the ground. They can be used to treat runoff from driveways and other pollution generating surfaces before infiltration as well.

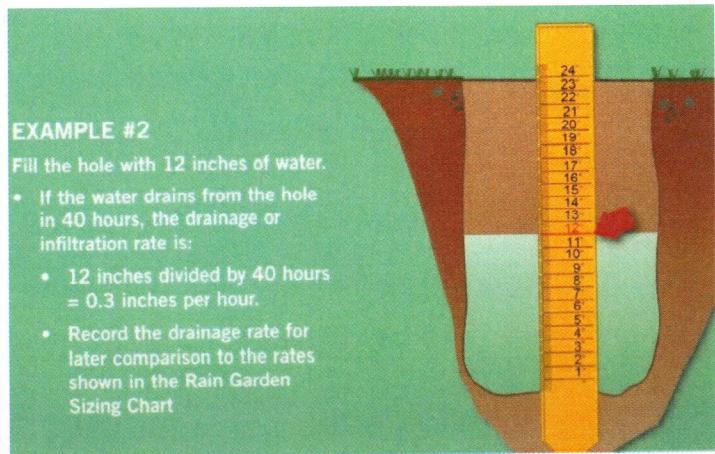
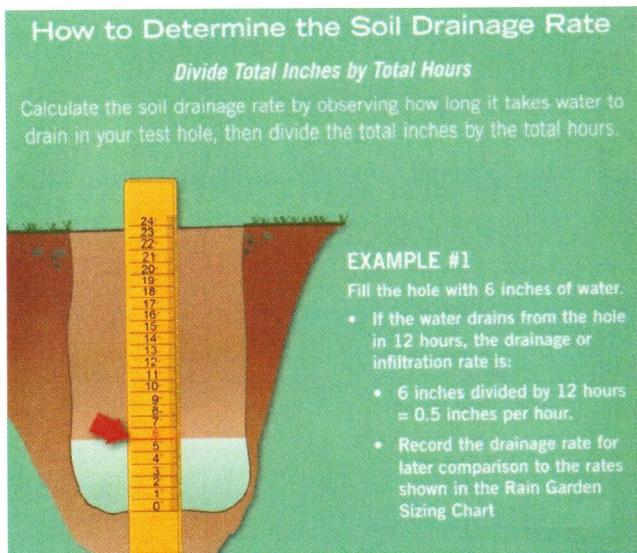
Where should it be used? This handout is for the use of rain gardens on single family residential lots only. The design and construction guidance cannot be used to construct rain garden facilities for commercial, multi-family or industrial sites.

How do I build it? First, create your site plan and determine where you want to install a rain garden on your site. You should have done this for your Minimum Requirement #1.

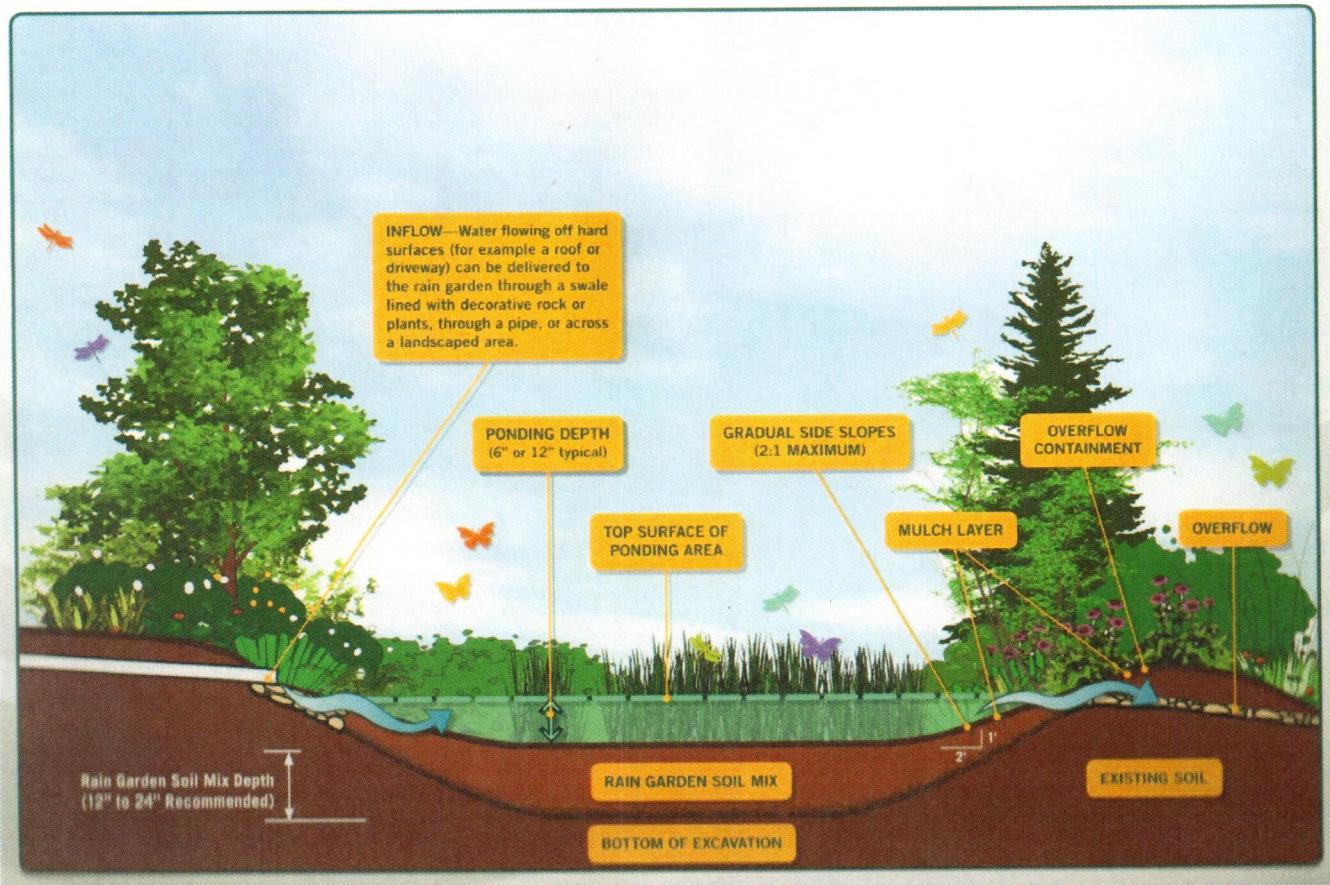
Second, determine how much area will be draining to the rain garden and what types of surfaces will drain to it. The following example is from the Rain Garden Handbook.



Third, determine how well the soil on your site can infiltrate the water. Dig a hole at least two feet deep and look at the soil. Is it rocky? Sandy? Fine Silt? Clay? If you aren't sure, fill the hole with water and see what happens.



Now it's time to calculate how big your rain garden needs to be. The worksheet on the next page will help you do that calculation.



Typical Rain Garden Cross Section

Rain Garden Worksheet

Step 1: Calculate Contributing Area

(Round up to the nearest Foot for all Measurements)

House
(length x width): A

Garage
(length x width): B

Other Area: C

Add lines A, B and C D
(Line "D" is your total contributing area)

Step 2: Determine Soil Type

Dig 2 ft deep hole and observe soil type:

Clay/Silt: _____

Silt (No Clay): _____

Silty Sand: _____

Sand: _____

Sandy Gravel: _____

Ponding Depth	Clay/Silt .1 - .24 Inches/hr	Silt .25-.49 Inches/hr	Silty Sand .5 - .99 Inches/hr	Sand 1-2.5 Inches/hr	Sandy Gravels 2.5 + Inches/hr
Size the top surface of ponding area by multiplying the contributing area by this percentage					
6 inches	45%	36%	30%	25%	17%
12 inches	N/A	31%	26%	22%	17%

Step 3: Determine Rain Garden Size

Soil Type from Step 2: F

Ponding Depth
(6 or 12 inches): G

Percentage from Chart Above:
(Intersection of soil type and ponding depth) H

Multiply Line D by line H
(Remember 26% = .26): I

Line "I" is the minimum required ponding surface area for your rain garden.

Step 4: Rain Garden Shape

Ponding Surface Area from line I: J

Preferred length of Rain Garden: K

(ft)

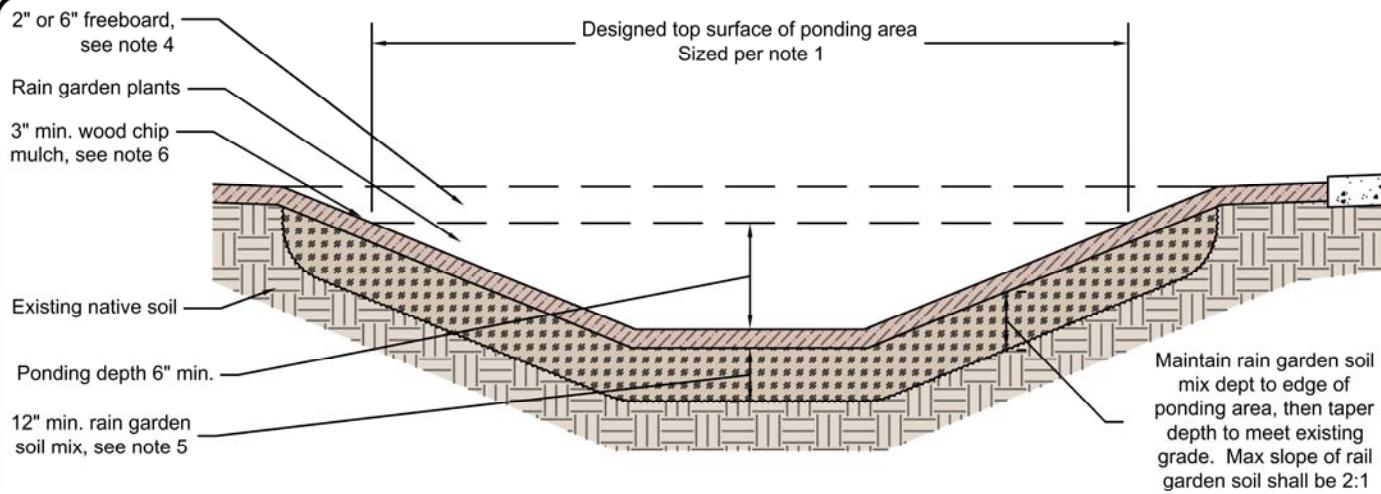
Width of Rain Garden
(Line J divided by Line K): L

(ft)

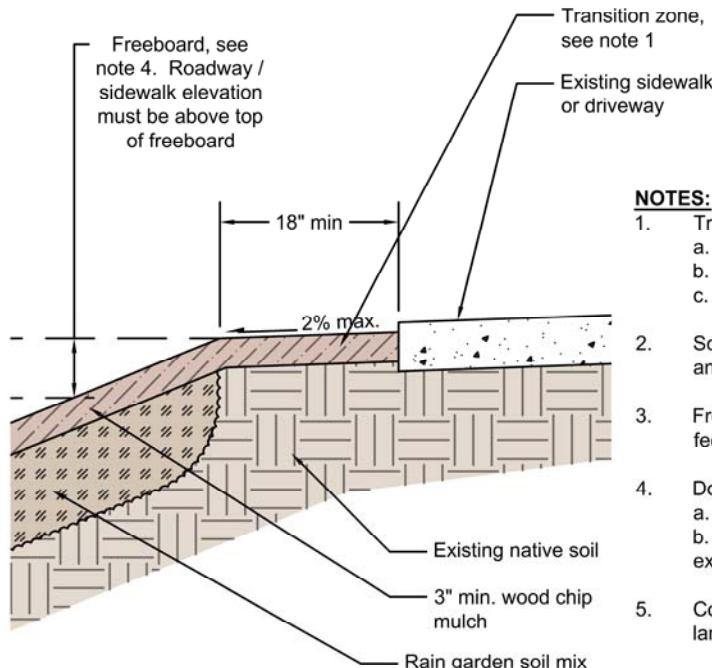
*HINT: If you want to create an irregular shape, lay out the rain garden on graph paper to make sure it is the right size following these steps:

1. Draw the rectangle with the corresponding sides to lines K and L above.
2. Draw the preferred shape you want on graph paper.
3. Count the number of squares inside the rectangle from #1.
4. Make sure the shape you drew in #2 has at least the same number of squares.

(Assume 1 square on the graph paper equals 1 foot)



RAIN GARDEN CROSS SECTION
NTS



NOTES:

1. Transition zone
 - a. 1-inch grade change from edge of sidewalk, curb and/or other hard surface.
 - b. 2% max. slope.
 - c. Transition shall be amended soils per note 2.
2. Scuff or till subgrade to 3-inch depth. Place 3 inches of topsoil or compost on surface and till into 5-inches of soil. Install 3-inches wood chip mulch or as specified on plans.
3. Freeboard shall be a minimum of 2-inches for contributing areas under 1000 square feet, or 6-inches for contributing areas 1000 square feet or greater per SWMM.
4. Do not compact the rain garden soil mix.
 - a. Do not operate heavy equipment within the rain garden.
 - b. Do not place or amend rain garden soil when the ground is frozen or when the soil is excessively wet.
5. Continue mulch for a minimum of 2-feet past the top of bank elevation or install landscape edging if rain garden is adjacent to turf.
6. Maximum side slope 3:1.
7. For step by step instructions see the Rain Garden Handbook for Western Washington.

**RAIN GARDEN ADJACENT
TO SIDEWALK OR DRIVEWAY**
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Rain Garden Section
BMP T5.14A

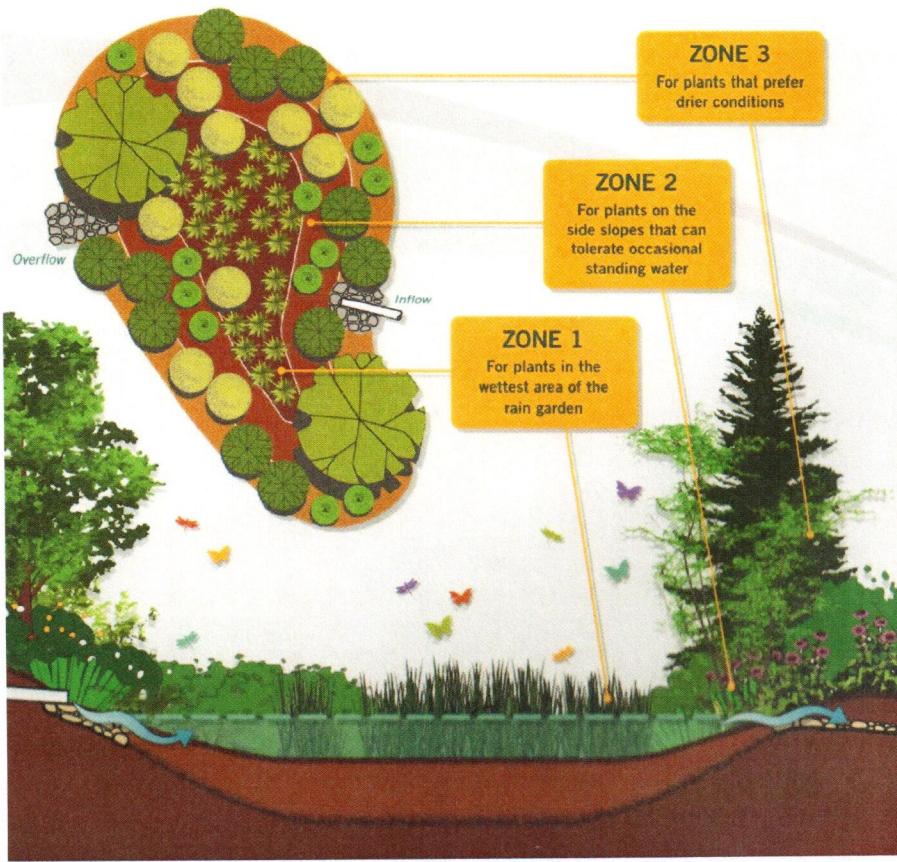
What is Rain Garden Soil Mix?

Rain garden soil mix is a mixture that is beneficial for plant growth and removing contaminants from water. There are three options for rain garden soil mix that you can use based on your existing soil condition:

Rain Garden Soil Mix		
Option 1	Option 2	Option 3
Excavate and Replace Soil Replace existing soil with a mixture of 60% sand and 40% compost.	Excavate and Amend Soil Excavate soil from rain garden location, mix 35% compost with excavated soil and place back in rain garden.	Amend Soil In Place Excavate soil from rain garden area, add 3 inches of compost and till together with existing soil.
Use this option for poor-draining soil locations	Use this option for moderately draining soil	Use this option for well-draining soil locations.

What Plants Grow in Rain Gardens?

Rain gardens have three distinct zones and you need to make sure you select the proper plants for each zone. A list of plants for the different zones can be found at www.raingarden.wsu.edu and www.greatplantpicks.org. You can also find a list in the back of the Rain Garden Handbook.



Rain Garden Planting Zones